

CLAIMS

1. A shearing force reinforced structure comprising:

an existing reinforced concrete structure object;

5 a shearing force reinforced member mainly made of a wire rod, the wire rod being arranged inside a reinforced member insertion hole formed at the reinforced concrete structure object; and

a filler filled in the reinforced member insertion hole,

wherein the reinforced member insertion hole comprises a general part having an inner diameter larger than a diameter of the wire rod; and a base end width broadening part formed at a base end of the reinforced member insertion hole and having an inner diameter larger than the general part.

2. The shearing force reinforced structure according to claim 1, wherein a top end width broadening part having an inner diameter larger than the general part is formed at a top end of the reinforced member insertion hole.

15 3. The shearing force reinforced structure according to claim 1, wherein the shearing force reinforced member comprises a shearing force reinforcing bar of the wire rod; and a base end fixation member that is formed at a base end of the shearing force reinforcing bar and of which a section shape is larger than a reinforcing bar diameter of the shearing force reinforced reinforcing bar.

20 4. The shearing force reinforced structure according to claim 3, wherein at a top end of the shearing force reinforcing bar is formed a top end fixation member of which a section shape is larger than a reinforcing bar diameter of the shearing force reinforced reinforcing bar.

25 5. The shearing force reinforced structure according to claim 1, wherein an adhesion strength of the filler is not less than 60 N/mm² in a case that the wire rod

is a deformed reinforcing bar.

6. The shearing force reinforced structure according to claim 1, wherein the filler is a fiber reinforced cementitious composite material where a fiber is mixed in a cementitious matrix.

5 7. The shearing force reinforced structure according to claim 6, wherein the fiber reinforced cementitious composite material is formed by: blending a fiber, of which a diameter is 0.05 to 0.3 mm and a length is 8 to 16 mm, by around 1 to 4% for a volume of a cementitious matrix obtained by mixing cement, an aggregate of which a maximum particle diameter is not more than 2.5 mm; a pozzolan reaction 10 particle of which a diameter is 0.01 to 15 μm ; and at least one kind of super plasticizer; and water.

8. The shearing force reinforced structure according to any one of claims 1 to 7, wherein a fiber sheet is adhered to a surface of the reinforced concrete structure object; and the fiber sheet and the shearing force reinforced member are integrated.

15 9. The shearing force reinforced structure according to claim 3, wherein a fiber sheet is adhered to a surface of the reinforced concrete structure object and that of the base end fixation member, and the fiber sheet and the shearing force reinforced member are integrated.

10. A shearing force reinforced structure comprising:

20 an existing reinforced concrete structure object;
a first shearing force reinforced member arranged inside a first reinforced member insertion hole and a second shearing force reinforced member arranged inside a second reinforced member insertion hole formed in the reinforced concrete structure object; and

25 a filler filled in the first reinforced member insertion hole and the second reinforced member insertion hole,

wherein the first shearing force reinforced member comprises a first wire rod, and a first base end fixation member formed at a base end of the first wire rod and having a width larger than a diameter of the first wire rod.

11. The shearing force reinforced structure according to claim 10, wherein the first reinforced member insertion hole comprises a first general part having an inner diameter larger than a diameter of the first wire rod, and a first base end width broadening part formed at a base end of the first reinforced member insertion hole and having an inner diameter larger than the first general part.

12. The shearing force reinforced structure according to claim 11, wherein at a top end of the first reinforced member insertion hole is formed a first top end width broadening part having an inner diameter larger than the first general part.

13. The shearing force reinforced structure according to claim 10,
wherein the second shearing force reinforced member comprises a second wire rod, and a second base end fixation member formed at a base end of the second wire rod and having a width larger than a diameter of the second wire rod, and
wherein the first base end fixation member has a width larger than that of the second base end fixation member.

14. The shearing force reinforced structure according to claim 13, wherein at a top end of the first shearing force reinforced member is formed a first top end fixation member having a width larger than a diameter of the first wire rod.

15. The shearing force reinforced structure according to claim 13, wherein at top ends of the first shearing force reinforced member and the second shearing force reinforced member are respectively formed a first top end fixation member having a width larger than a diameter of the first wire rod and a second top end fixation member having a width larger than a diameter of the second wire rod.

16. The shearing force reinforced structure according to claim 10, wherein the

reinforced concrete structure object comprises a rahmen structure, and the first reinforced member insertion hole is formed at a corner of the reinforced concrete structure object.

17. The shearing force reinforced structure according to claim 10, wherein in
5 the first base end fixation member, at a base end of the first wire rod is fixed a plate
member configured with a width not less than five folds and not more than 20 folds,
preferably not less than ten folds and not more than 15 folds of a diameter of the
first wire rod.

18. The shearing force reinforced structure according to claim 10, wherein a
10 fiber sheet is adhered to an inner face of the reinforced concrete structure object,
and the fiber sheet is integrated with the first wire rod.

19. The shearing force reinforced structure according to claim 10, wherein a
fiber sheet is adhered to an inner face of the reinforced concrete structure object,
and the fiber sheet is adhered to a surface of the reinforced concrete structure object
15 and that of the first base end fixation member of the first wire rod and is integrated.

20. A shearing force reinforced member arranged inside a reinforced member
insertion hole formed in an existing reinforced concrete structure object, the
member comprising:

20 a wire rod having a length shorter than a total length of the reinforced
member insertion hole; and

a base end fixation member and a top end fixation member respectively
having width sizes larger than a diameter of the wire rod and respectively fixed at a
base end and top end of the wire rod

21. The shearing force reinforced member according to claim 20, wherein a
25 width size of the top end fixation member is formed to be 120% to 250% of a
diameter of the wire rod.

22. The shearing force reinforced member according to claim 20,
wherein at a top end of the wire rod a male thread member is integrally
formed, and

5 wherein the top end fixation member is configured with a steel plate of
which a shape is a circle or a polygon, a thickness size is 80% to 120% of a diameter
of the wire rod, and a width size is 200% to 300% of the diameter of the wire rod; a
female thread is formed in the steel plate; and by screwing the male thread member
of the wire rod into the female thread, the top end fixation member is fixed at the
top end of the wire rod.

10 23. The shearing force reinforced member according to claim 20,
wherein at a top end of the wire rod is processed a male thread, and
wherein the top end fixation member is configured with a steel plate of
which a shape is a circle or a polygon, a thickness size is 80% to 120% of a diameter
of the wire rod, and a width size is 200% to 300% of the diameter of the wire rod; a
female thread is formed in the steel plate; and by screwing the male thread of the
15 wire rod into the female thread, the top end fixation member is fixed at the top end
of the wire rod.

24. The shearing force reinforced member according to claim 20,
wherein the wire rod is configured with a thread reinforcing bar, and
20 wherein the top end fixation member is configured with a steel plate of
which a shape is a circle or a polygon, a thickness size is 80% to 120% of a diameter
of the wire rod, and a width size is 200% to 300% of the diameter of the wire rod; a
female thread is formed in the steel plate; and by screwing the wire rod into the
female thread, the top end fixation member is fixed at a top end of the wire rod.

25. The shearing force reinforced member according to any one of claims 20 to
24, wherein in the base end fixation member, at a base end of the wire rod is fixed a

steel plate of which a shape is a circle or a polygon, a thickness size is 30% to 120% of a diameter of the wire rod, and a width size is 130% to 300% of a diameter of the wire rod.

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